

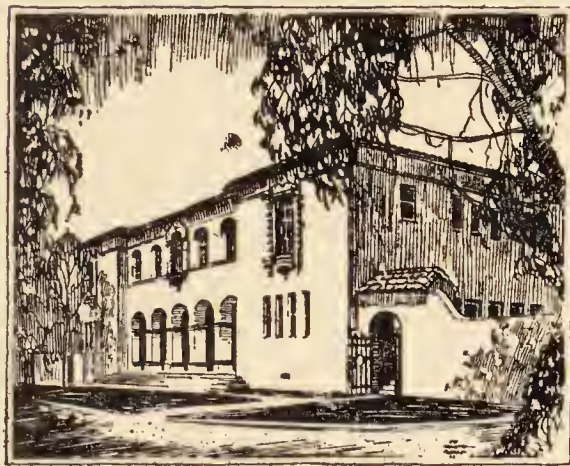
BULLETINS
OF THE
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No. 20

CONSPICUOUS MAMMALS
of
THE SOUTH PACIFIC

By KEN STOTT, JR.



SAN DIEGO, CALIFORNIA, U. S. A.

April 1, 1944

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Conspicuous Mammals
of
The South Pacific

By

KEN STOTT, JR., PHM. 2/C, U. S. N. R.

Author of "Conspicuous Birds of the South Pacific"

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RED LUTONG

This type of langur or leaf-eating monkey, while common in the wild, is delicate and seldom seen in zoos.

FOREWORD

Perhaps no other region on the face of the earth can boast of as many weird and unique mammals as can that which extends from equatorial Sumatra, Borneo, and the Celebes south and east throughout the Malay Archipelago to New Guinea, Australia, Tasmania and New Zealand. Saucer-eyed lorises, slow-moving and primitive cousins of the monkeys, pint-sized buffalo, egg-laying mammals with bills, the kangaroos, and the Koala, a living counterpart of the teddy-bear, are but a few of the strange creatures which make their home in this area. American soldiers, sailors, and marines now in the South Pacific region have unexcelled opportunities to study such animals in their native haunts and it is for these individuals that this non-technical bulletin has been prepared. While such a pamphlet cannot even so much as list completely the mammals of the South Pacific area, it strives to indicate the types of fur-bearing animals one may hope to find there and typical examples of each group.

PRIMATES

Following a more or less accepted pattern in treating the systematic classification of mammals, our first group is that of the Primates which is composed of the anthropoid or man-like apes, monkeys, marmosets, and a number of more primitive forms like the lemurs, lorises, and tarsiers.

While man-like apes in the South Pacific are limited to the northern islands of the region, they deserve certain recognition and, because of their similarity to mankind, should be of interest to anyone who has even the remotest chance of encountering them in the wild. Like man, the anthropoids have the ability to hold their bodies in a vertical position, to sit erect, and like him they are tailless. In being tailless they differ from monkeys and other lower primates. Together the anthropoid apes share as a common characteristic the fact that their arms are longer than their legs and in the trees they rely upon their arms for locomotion rather than their legs. Two of the four groups of anthropoids are represented in the South Pacific region, the orang-utan and the gibbons, while the chimpanzees and gorillas are restricted to the continent of Africa. All four types are for



ORANG-UTAN

His name means "man of the woods." Largest Asiatic primate, the orang is a native of Sumatra and Borneo. The specimen shown here is an adult male.

the greater part vegetarians.

Who has not, upon seeing in the zoological park the powerful-armed orang-utan swinging from bar to bar, imagined the same animal moving as effortlessly through a giant tree in the jungle wilderness that is Sumatra and Borneo? There lies the stronghold of this mysterious denizen of the forest and in his home he has no enemies of major importance but the great cats and man. His name is an appropriate one, being two native words which

mean "Man of the woods." His long fore-limbs are well adapted for the arboreal life he leads and his hands are strong and suited for grasping. His body, well hidden beneath the cloak of long, coarse red hair, is small and light compared to those of his cousins, the gorillas, who, because of their prodigious weight and tremendous body proportions, must remain for the most part upon the ground. Characteristic as a rule of only the adult male orang-utan are broad, wedge-shaped cheek pads which are frequently hairless, exposing blue-black, deep-pored skin. Also prominent in most adult males is a large throat pouch which, when inflated with air, presents a goiterous appearance. Orang-utans in the wild state are becoming more uncommon year by year. Their distribution in Sumatra is now limited to the northern end of the island but in Borneo they may still be found in many of the forested swamp regions throughout the island.

The musical gibbons enjoy a wide distribution throughout southeastern Asia and Borneo, Sumatra, Java and the adjacent



MUELLER'S GIBBON

This little ape lives in the jungles of Borneo. He is the acrobat of the animal world and his high, ringing voice is unequalled.



SIAMANG

A coal black gibbon whose balloon-like throat-pouch adds resonance to his song. This is a young specimen.

islands. The family is composed of a group of small, agile apes which are considered to be intermediate between the monkeys and the larger anthropoids. Like the other man-like apes, the gibbons are tailless. Their bodies as well as their limbs are slender and long. They are covered with soft, woolly hair on most of the body-surface; however, their faces, soles, and palms

are naked and black-skinned.

The gibbons travel in small family groups. Such a family may be composed of individuals of all ages from nursing babies to aged adults. They are strictly arboreal and their acrobatic talents are unequalled. Their high, flute-like song can be confused with that of no other animal and it is one of the most thrilling manifestations of nature's musicianship.

Largest of the gibbons is the jet black Siamang whose enormous throat-pouch lends a booming resonance to his song. Differing from those of other gibbons is the coat of the Siamang which is sleek and shiny. The Siamang is a native of Sumatra.

While monkeys are not represented in the Australian area, they are numerous on the islands of the northern South Pacific region. Of all Oriental monkeys the Proboscis Monkey of Borneo is undoubtedly the most startling in appearance. While he is a large, long-tailed monkey and colored chestnut above and yellow below, his most unusual feature is the long, swollen appendage that is his nose. Regardless of whether or not noses denote aristocracy in the monkey world, they are prominent in but a very few species of the primates. Old male Proboscis Monkeys attain a jimmydurante-ish aspect to a degree that is astonishing. The Proboscis Monkey is well adapted for life in Borneo for, in addition to being adept at tree climbing, he is an excellent swimmer. A native of South Pagi Island, Sumatra, is the likewise nosed Pagi Island Monkey whose proboscis is far less impressive than that of the preceding species. While this monkey can boast of having a nose more prominent than average, it is short, small in girth, and up pointed. The coat of the species is described as being clove brown and its face, palms and soles coal black.

Closely related to these two species is a large group of good-sized, long-tailed monkeys known as the langurs which are distributed throughout much of southeastern Asia and the adjacent islands. The langurs are largely arboreal and subsist for the most part on leaves and fruit. Their red, brown, or black fur is usually shaggy and fine and their limbs long. Their tails, like those of all Old World monkeys, are not prehensile and used solely for the purpose of balance. Langurs are not often seen in zoos because of their delicate natures.



BLACK LUTONG

Typical of the langurs, this one is a native of Sumatra.

The true macaques are heavy-bodied, short-limbed monkeys. One rather interesting and unique characteristic of the group is that of their thumbs which turn backwards. The macaques are distributed throughout much of Asia and upon many of the islands to the south and southeast of that continent. Impressive is the Pig-tailed Macaque of Burma, the Malay Peninsula, Su-

matra, Java, and Borneo. His body is ochraceous in color with black along the back and reddish-yellow upon the legs. His short, thick tail which rises abruptly from the body to form an arch a couple of inches from the body and drop downward, is responsible for his name. Among the other macaques are species which are much smaller and few have arching tails like that of the Pig-tail.

Scattered reports from the Solomons have told us that upon this island group exists a species of wild macaques, native to the Solomons region. However, such reports have been vague and far from satisfactory. Concerning the question, Mr. Alexander Wetmore, Assistant Secretary of the National Museum in Washington, D. C., writes "there are no native monkeys in this general area. It is possible that some species may have been introduced." Mr. J. E. Hill, Assistant Curator of Mammals of the American Museum of Natural History, New York City, concurs with the following statements, "No monkey is normally and naturally found on the Solomons . . . It is always a possibility that white inhabitants have had monkeys for pets which have now been allowed to go back to nature."

Celebes Island is inhabited by two monkeys, the more attractive of which is the strange little Crested Black "Ape," so called because its tail is very rudimentary and scarcely visible. The species is coated with trim, black hair which upon the head rises in a feathery tuft of long black hairs. The face is bare, black skinned and long and narrow. Rare even in the wild, the Celebes Crested Ape is seldom seen in captivity. More common are the heavier-bodied Brown Apes whose dull, coffee colored coats distinguished them from their rare cousins. They are crestless, but like the Crested Black Apes have rudimentary tails.

Moving down the scale of primates we come to one of the strangest of the entire order, the lethargic Slow Loris which ranges from India to the Philippines and down to Java, Sumatra, and Borneo. Slow-moving and squatty, the Slow Loris is a small, tailless animal measuring a little more than a foot in length. He is covered by a coat of smooth, woolly fur which is silver on the flanks, ash-gray above with black down the very center of the back. The eyes are immense, reminding one of those belonging to the large-eyed dogs of Hans Christian Anderson. The eyes



CRESTED APE

This denizen of the Celebes is in reality a monkey, not an ape. Rarely exhibited in zoos, he is uncommon even in the wild.

are surrounded by spectacles of black upon the face and a streak of white lies between them. The Slow Loris is a nocturnal animal and feeds upon leaves, insects, eggs, birds and fruit.

Likewise nocturnal is the Spectral Tarsier, which Hooton in his book, "Man's Poor Relations" calls "the retarded tarsier". This extremely primitive primate shows little external similarity to man or to a monkey for that matter. However, structurally

there is a definite relationship. No larger than an ordinary rat is the delicate little Spectral Tarsier which inhabits Borneo, Java, and the Philippines. The Tarsier's body is small and slight but its tail is long. Its legs and arms are short and its digits tipped with sucker-like discs which it employs in its arboreal excursions. Its coloring is reddish-brown above and grayish below. Like the lorises, the Tarsier possesses a pair of large, soulful brown eyes suited for use in a nocturnal existence.

BATS

Although most bats feed at twilight and during the early evening, there are certain forms of these flying mammals which are conspicuous and active enough during the daylight hours to receive mention. Familiar to inhabitants of the South Pacific area are the large fruit-bats, sometimes miscalled "flying foxes," which range throughout much of southeastern Asia and down to Australia. They are gregarious, living in large companies. While their sleeping habits are similar to those of other bats, they are somewhat more active during the daytime. However, instead of selecting dark caves or barns and other man-made structures for roosting places, these bats spend their days hanging on the branches of large trees in the open. The sight of such a tree literally covered with fruit-bats is not uncommon. As their name would indicate, the fruit-bats live chiefly on fruit but they feed also on blossoms which they chew because of the nectar within.

Represented in the area as well are the insectivorous bats but, to their smaller size and diurnal inactivity may be attributed the fact they are not to be commonly observed.

Although fruit-bats have been sent or brought to the San Diego Zoo from various points in Asia and the South Pacific, their final destination has inevitably been a natural history museum where they have been prepared as mounted specimens or study skins. Government regulations prohibit their importation alive for their destructive feeding habits would render them a menace if they were to escape and establish themselves in this country.



DINGO PUPPY

This one was born in captivity but his wild relatives in Australia are enemies of sheep-herders there.

CARNIVORES

The true carnivores, non-marsupial, meat-eating mammals with teeth especially adapted for such a diet, are well represented on the northern islands of the South Pacific area but only one native, non-aquatic species is found on New Guinea and one on Australia.

"Yellow Dog Dingo" of Australia is an old friend to most individuals familiar with Rudyard Kipling's "Just So Stories" but to the Australian shepherd he has long been an enemy. The origin of the Dingo, a true canine and not a marsupial imitation, remains a mystery and is a point of conjecture among scientists. Whether he was brought to Australia by the aborigines in the distant past or the dog found his way there in prehistoric times is not known. In any event, in fairly recent times this gregarious.

dog was found there in great numbers and proved such a menace to the imported sheep herds that the sheep-herders were forced to slaughter the Dingos ruthlessly. The Dingo, now rare, is like no other wild Australian mammal; he resembles for all the world a medium-sized, tawny-orange domestic dog. Similar in this respect is the black and white spotted Wild Dog of the mountains of New Guinea for he, too, looks more like a domestic canine than a wild species. As is the case with the Dingo, the origin of this species is as yet unknown. The Malayan Wild Dog, a coyote-like animal, is native to the Peninsula and Sumatra, Java and Borneo.

Among the smaller carnivores which range through the islands of the northern South Pacific is a large and varied series of civets. These animals are usually characterized by having scent glands, long, flattened bodies, elongate, narrow heads, short legs, small, five-toed feet and retractile claws. Several species of the typical spotted bodied, short and banded tailed civets occur in Java, Sumatra, and Borneo. Quite different from the typical short-tailed civets is the Linsang, a native of Java and Borneo, whose tail is as long as his body. Like those of the typical civets, the tail of the Linsang is banded, there being seven complete rings on the tail of this species.

The palm civets are delicate little animals which are largely arboreal. Unlike the civets mentioned in the preceding paragraph these are characterized by the more uniform marking of their tails. The rings upon the tail of the Celebes Palm Civet are so inconspicuous as to be scarcely noticeable. The White-eared Palm Civet of the Malay Peninsula may be identified by the three stripes which run from the neck to the tail along the back of the animal. The general body color is dusky-gray which becomes almost brown upon the back. The Hemigale Palm Civets of Borneo, Sumatra, and the Malay Peninsula are characterized by the pale gray of the back.

The strange Binturongs or "bear-cats" inhabit much of the forested country of southeastern Asia as well as Java, Sumatra and Borneo. This species is a large one, specimens measuring as much as fifty-five inches from the nose to the tip of the bushy, prehensile tail. The fur is black, tinged with gray, and grows in prominent tufts above the ears, a characteristic which the Binturong shares with no other civet.



BINTURONG

A prehensile-tailed civet.

Related to the civets but distinguished by their long, non-retractile claws and lack of scent glands are the mongooses of Asia, southern Europe and Africa. They have elongate bodies and tails, short, pointed noses and each individual hair of their coats is colored with alternate bands of light and dark. Native to the South Pacific are the large Javan Mongoose, the Barred Mongoose of Borneo, and the Short-tailed Mongoose of the Malay Peninsula and certain of the islands to the south.

Confined to the mountains of Java, Sumatra, and Borneo, is the Malayan Badger, which is not often seen for he is nocturnal. In color he is dark brown but from the top of his head down the center of his neck and back runs a band of cream. His short stump of a tail is dark, tipped with cream. The hair on the back of the neck is long and forms a semblance of a crest. Like other badgers, this species is a burrowing animal, and like them he is a low animal with short, powerful limbs and long claws for digging and a long, tapering muzzle.

Longer-bodied but with shorter limbs and longer tails are the ferret badgers, one species of which, the Brown Ferret-badger, is native to Java. In color it is yellowish-brown and like the preceding species, it is nocturnal.

Among the otters found on northern islands of the South Pacific are the Smooth Indian Otter, distributed throughout India as well as Burma, the Malayan Peninsula and the island of Sumatra, and the Clawless Otter, which occurs from India to China and south through the Malayan Peninsula to Java. Both species are characterized by long bodies, very short legs, broad and flat heads, tails of moderate length, short and rounded feet, and webbed toes. Both are semi-aquatic and feed on fish.



SUMATRAN TIGER CUBS

Common in zoos, tigers are not often seen in the wild. When encountered in the jungle, they may prove formidable adversaries.

Since tigers require no introduction it is enough to say that they are found on Java and Sumatra as well as much of the mainland of southern Asia. Far more uncommon and comparatively little known is the smaller Clouded Cat which is considered

by many individuals to be the most beautiful of the large cats. This animal, characterized by large, irregular dark markings upon a ground color of tawny gold or gray, is confined to southeastern Asia and the islands of Java, Sumatra and Borneo. Two smaller cats are indigenous to these northern islands the first of which, the Leopard Cat, brings to mind a long-legged domestic tabby. From nose to tail it measures about three feet and its tawny body is dappled with small spots. The long-bodied Flat-headed Cat is short-tailed, short-legged, and its body is colored a grizzled reddish-brown. It is to be found on the islands of Borneo and Sumatra as well as the Malay Peninsula.

The only bear which finds its way into the South Pacific region is the droll Malayan Sun Bear whose range includes Java, Sumatra, and Borneo. The smallest of the bears, this little fellow has a close-clipped black coat and usually a narrow white horizontal band high on the chest. In spite of his small size, he may be considered dangerous for he is well armed with long claws and sharp teeth and is vicious in disposition.

Of the five species of seals and sealions which are now to be found in Australasian waters, only three species commonly occur there, the other two being native to the Antarctic and making only occasional visits to the southern shores of Australia. All three of the species which are residents of various sections of the Australian coastline and that of New Guinea are members of the group of eared-seals or sealions, and both the rarer winter visitors from the far south belong to the group of earless-seals. While both types of seal have ears, those of the sealion group have membranes forming external earflaps while the earless seals have only unprotected openings with no visible external ears. The sealions are far more agile on land, for both their fore and hind flippers are suited for walking while the hind flippers of the earless seals are anatomically incapable of walking.

Native to the islands of southwestern Australia is the Australian Sealion, a yellowish-brown animal which may reach a length of seven feet. The Australian Fur Seal, another member of the sealion group, is a smaller, fawn colored seal native to southeastern Australian seas. The New Zealand Fur Seal is slightly larger than the Australian form and is colored a grizzled gray. It is to be found along the coasts of southern New Zealand and Australia.

From the ice-floes of the Antarctic come the Leopard Seal and the Crab-eating Seal, both of which are members of the earless seal group. The Leopard Seal reaches a length of eight feet and his gray coat is spotted with black splotches. The Crab-eating Seal in the warmer months has a coat of brownish-gray with brown rings, but in winter fades to cream. It is slimmer and longer than the preceding species and reaches a length of nine feet.

THE SEA-COW

One of the strangest creatures of the entire Australasian region is an aquatic species which is known as the Australian Dugong or Sea-Cow. This marine mammal grows to a length of eight feet. Its head is round and its fore-limbs nailless and paddle-shaped. Its tail is flattened and horizontally expanded. The skin is smooth and nearly hairless and above is colored slaty black. The Dugong is strictly vegetarian and feeds on grasses which grow below the surface of the water. The Australian Dugong and allied species range from Australia up through the Malay Archipelago, in the Indian Ocean and as far as the coasts of Africa. The sea-cows are sufficiently different from other mammals anatomically to be classified in a separate order of their own.

HOOFED ANIMALS

While Australasia has no indigenous hoofed animals, a number of unusual forms are to be found on the islands of the northern South Pacific. Of these, the odd-toed hoofed mammals are represented by a species of tapir and two of rhinoceroses, and the even-toed by deer, mouse-deer, swine, and buffalo.

The South Pacific can boast of no wild members of the horse family, but two relatives of the horse, the tapir and the rhinoceros, are to be found, although rarely, on certain of the equatorial islands of the region, Java, Sumatra and Borneo.

Although its distribution centers on the Malay Peninsula, the Asiatic or Saddle-backed Tapir is also to be found on the islands of Borneo and Sumatra. Tapirs bring to mind giant pigs with



ASIATIC TAPIR

An aquatic cousin of the horse and the rhinoceros. It is found on Borneo, Sumatra, and the Malay Peninsula.

long, prehensile and ever-curious noses. Their eyes are small and their ears round. Their legs are comparatively thin and weak, which may be responsible for the peculiar and jerky gait of the tapirs. The Saddle-backed Tapir is well named, for his coal-black head, neck, shoulders and legs present contrast to the silver-gray of his back and flanks. The Saddle-back, standing four feet high at the shoulders, is the largest of the tapirs. Like the American species, it is largely aquatic and feeds on marsh plants.

Somewhat similar but much larger are the rhinoceroses, two of which are to be found on certain of the northern South Pacific islands. The larger of these animals is the Lesser One-horned Rhino which stands approximately five and one-half feet high at the shoulder and may weigh four thousand pounds. This species includes within its range Burma, the Malay Peninsula, the islands of Sumatra and Java, and possibly Borneo. The Asiatic

Two-horned Rhino is much smaller, standing but four and a half feet at the shoulder and attaining a weight of only two thousand pounds. It is to be found from Bhutan to Malaya and on the islands of Sumatra and Borneo. Characteristic is the sparse coat of coarse hair which has gained this species the name of "hairy rhino." Both of these rhinoceroses are rare and the Lesser One-horned Rhino is nearing extinction.

Two types of deer are native to the islands south of the coast of Malaya. The first of these are medium sized deer known as the sambars. Their coats are composed of dark, wiry hair which upon the necks of the bucks forms erectile manes. In color the sambars are nearly black. The antlers of the bucks are thick and three-tined and are usually retained for two or three years instead of being shed annually as are those of most deer. Their tails are long and bushy. This characteristic is responsible for the name "horse-tailed deer" as the sambars are often called. They are distributed over most of the Oriental region and as far south as Timor and Molucca.

The dainty muntjac or barking deer are shy little creatures which stand but two feet in height. They have small antlers, which are two-tined and five or six inches in length, V-shaped ridges upon their faces, well developed tusks in their upper jaws, and their color varies from red to tawny yellow. The muntjacs are found from India to Malaya and on Sumatra, Java, and Borneo.

Another type of hoofed mammal which occurs on these northern islands is the diminutive Kanchil, Mouse Deer, or Chevrotain, native to Java and Sumatra. Other species are found on the Asiatic mainland and in Africa. They are very small and extremely timid and are seldom encountered even in their native forestland. They are not true deer but are classified in a family of their own. They are no larger than rabbits and the body markings of white against the chestnut of their coats render them striking in appearance.

Wild swine are to be found on many of the northern South Pacific islands and on other islands pigs introduced by man have reverted to the wild state. Typical of the wild varieties is the Warty Pig of Java whose appearance as well as his name remind



BABIRUSSA

Unique is this pig which lives in Celebes. The name means "pig-deer."

one of the African wart-hogs. Like the wart-hogs, the Warty Pig has large, irregular tuberosities upon his face and from his lips curl four yellow tusks. His slim body is held high above the ground by trim, sinewy legs and is coated by a thin coat of coarse brown hair. Quite different and more grotesque is the hairless Babirusa of the Celebes. This unusual porker is of heavier build than the warty pig, and his naked, gray skin brings to mind that of the elephant. The male has four tusks, the upper of which curve up and to the rear until they sometimes form almost complete rings. The male Babirusa is much larger than the female.



ANOA

A half-pint buffalo native to the forests of the Celebes.

The species is seldom exhibited in zoological collections and is said to be uncommon even in the wild. The name Babirusa is a combination of two Malayan words which together mean "pig-deer."

Smallest cattle in the world are the shy Anoa, pigmy buffalo of the mysterious Celebes. When full grown, they stand approximately three feet high at the shoulder, and their new-born are scarcely as large as good sized rabbits. At birth they are coated with a covering of reddish, plushy fur, but as they mature their coats darken and eventually become so sparse that the adults are nearly hairless. Both sexes are horned but, unlike those of the water buffaloes, the horns of the Anoa point almost directly to the rear, growing out to the sides only slightly. Anoa are forest animals and, like most creatures from the Celebes, are rare in zoological collections.

To be contrasted with the Anoa is the giant Banting or Javan

Ox, a great blackish-red beast with white lower legs and a white rump patch. Its horns grow sharply outwards but are short and heavy. The Banting is native to Java, Borneo, and Sumatra, as well as the Malay Peninsula and Burma.

ELEPHANTS

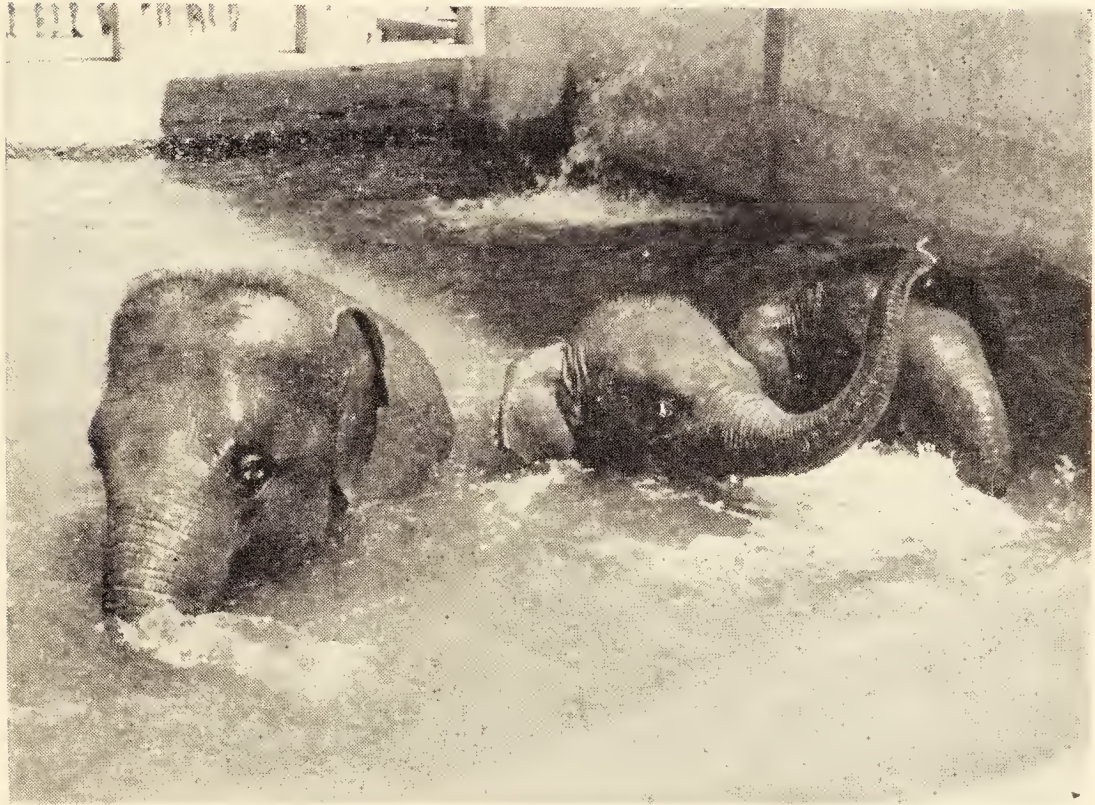
The Asiatic Elephant requires no description, for he is the most familiar beast of zoo and circus. The Asiatic Elephant has been extensively domesticated and the remaining wild herds of India, southeastern Asia and the islands of Sumatra and Borneo are all under government protection.

RODENTS

Like every other part of the world, the South Pacific islands have their share of rodents, some of which are native and others of which have been introduced. House rats, water rats, prehensile-tailed rats, mosaic-tailed rats, jerboa-rats, typical mice, and kangaroo-mice are to be found on various of the islands as well as Australia, New Guinea and Tasmania. Of the many squirrels native to the northern South Pacific islands, the large, tufted-eared Malayan Squirrel offers quite a contrast to three species of the tiny pigmy squirrels which are restricted to Borneo. Porcupines of at least two groups are represented on these islands: one species of the crestless variety; another known as the Gunther's Porcupine is restricted to Borneo alone.

EDENTATES

The Edentates or toothless mammals, so called because they are characterized in most species by an absence of front teeth and in some species by a complete lack of any teeth, are represented in the northern South Pacific islands by but one species, the Malayan Pangolin. This strange creature is described by Lydekker as being "an animated spruce-fir cone with a head and legs" for the entire upper surface of its body is covered by large, horny, over-lapping scales which serve as excellent protective armor. Like his cousin, the armadillo, the pangolin when annoyed merely rolls himself up into a tight ball. His head is



INDIAN ELEPHANT

A favorite in zoos, this species is still to be found wild in parts of southeastern Asia and the adjacent islands.



small and his limbs short, but the latter are provided with strong claws which enable him to obtain the insects upon which he feeds. The Malayan Pangolin is distributed from India to the Celebes.



GREAT GRAY KANGAROOS

This species, one of the largest, ranges throughout much of Australia and a close relative is found in Tasmania.

MARSUPIALS

Although the pouched mammals are believed to have originated in other parts of the world, they are now restricted with few exceptions to the Australian region where, until man introduced certain foreign predatory animals, the marsupials were isolated, and in this way protected from the predators which have destroyed and annihilated them in most other sections of the globe. What vestiges of marsupial life do remain in the Western Hemisphere render the order a familiar one to North and South Americans. The rat-like Opossum of the United States is typical of the New World marsupials, and he and his family are distributed through much of North, Central and South America.

The Australian region, however, may boast of far more diversified types of pouched mammals, for represented there are forms which resemble our dogs, cats, rodents, moles, civets, etc. as well as creatures like the kangaroos, the Koala, and the wombats which have no non-Australian counterparts.



BLACK-STRIPED WALLABY

Typical of the wallabies found in Australia, Tasmania, and New Guinea.

The kangaroo and his clan are restricted to Australia, Tasmania, and New Guinea. Characteristic are long, tapering tails which are employed as balancers and props, and the large and powerful hind legs which enable these animals to leap with a peculiar balancing action. The front legs seldom touch the ground and are weak and underdeveloped. Kangaroos are to be found in various types of terrain but, while their feeding habits differ somewhat, they all have in common their vegetarian diet.

Typical of the family are the Giant Red and Great Gray Kangaroos, both of Australia. The Giant Red is the largest of the kangaroos and may reach a length of more than five feet. Both species are characterized by short woolly fur, that of the Red being close-clipped. They are powerful animals and inclined to be vicious. Their long, muscular legs enable them to attain high speeds. Small kangaroos belonging to the same genus are called wallabies, and various forms are native to Australia, Tasmania, and New Guinea. Those kangaroos which are intermediate in size between the large kangaroos and the true wallabies are called wallaroos (which are restricted to Australia) but all three are classified as belonging to the genus *Macropus* and may be distinguished from certain other forms by their unfurred noses.

Classified as a separate group are the rock-wallabies, which are also characterized by naked noses, as well as extremely short central hind-claws, roughened foot-pads, and non-tapering tails. Like the wallaroos, the rock-wallabies are restricted to Australia where they inhabit the rocky ranges over the entire continent.

A group of small kangaroos known as the hare-wallabies may be identified by their wholly or partially furred noses. Another group, the nail-tailed wallabies, are so called because of the horny projections on the ends of their tails.

While all of the preceding are terrestrial, a group known as the tree-kangaroos is well represented in New Guinea and by two species in Northeast Queensland, Australia. They are suited to an arboreal life, for their rough foot-pads and longer tails, as well as sharp claws are all useful in tree climbing. Furthermore their fore-limbs are better developed than those of most terrestrial kangaroos. They are forest animals and are restricted for the most part to the mountain ranges and plateau regions.

Smallest of the kangaroos are the diminutive rat-kangaroos which are found throughout Australia and Tasmania. They are well named for their resemblance to large rats is pronounced. In size they might be compared with rabbits and they are characterized by having all four legs approximately the same length, very long middle claws on the forefeet and no first toes on the hind feet. While they live chiefly above the surface of the ground, they may occasionally be found in burrows.

Related to the kangaroos, but arboreal, are the phalangers.



KOALA

The original teddy-bear, this species bears its young in a pouch. It is under rigid governmental protection and its exportation is prohibited.

They are well adapted for life in the trees and most species feed on leaves, although certain ones are insectivorous. In appearance they vary considerably from tiny mouse-like creatures to larger animals like the Koala. Some species have long, prehensile tails, while others are practically tailless.



WOMBAT

A marsupial which is a powerful digger and lives in burrows.

Among the most attractive of the entire family are the flying phalangers which, like the North American flying squirrels, possess membranes growing from their flanks. Like those of the flying squirrels, these membranes enable their owners to glide from the tree tops to lower branches or the ground.

In the same family are the Australian opossums, which are less ferocious-looking but far more attractive than the members of the American opossum family. Unlike our species, most Aus-

tralian forms have furred tails. Their coats vary considerably, those of some species being gray and others silver, copper-colored, or black.

Another group of phalangers, the cuscuses, are found from the tropical forests of Northern Australia and New Guinea to the Celebes and on many of the intervening islands. They are slow-moving and sluggish but are difficult to kill because of their heavy fur as well as their tenacity of life. They are arboreal and sleep during the day curled up in the thick foliage of jungle trees. They have strong, prehensile tails and their fur is thick and woolly. Some species are strikingly marked with black and white splotches.

Undoubtedly the best known of the phalangers is the Koala whose round little body, comical face with its "patent-leather nose," the round ears, short legs, and soft, plushy coat, are familiar to everyone. The Koala is restricted to Australia where he is protected. He is arboreal and feeds only on the leaves of certain eucalyptus trees.

Somewhat similar in appearance, but belonging to a different family, are the terrestrial wombats whose habits resemble those of our badgers. They are powerful diggers and spend much of their time in burrows beneath the surface of the ground. Wombats are to be found in southeastern Australia, Tasmania and the islands of the Bass Strait.

Also burrowing animals are the small, long-nosed bandicoots whose hind legs are similar to those of the kangaroos in that they are long and well developed. Their front legs are powerful and fortified with long claws which they utilize in digging. Members of one group of bandicoots are known as the rabbit bandicoots because of their long, pointed ears. Their tails are long and furred. Another group characterized by naked tails are called the rat bandicoots. The bandicoots are native to Australia, New Guinea, and Tasmania.

Two unusual marsupials, the Thylacine or Tasmanian Wolf, and the Tasmanian Devil, are restricted to the island of Tasmania and suggest far more a dog and a badger, respectively, than they do their closer relatives, the kangaroos and other pouched animals. The Thylacine is quite dog-like in appearance, having the typical canine legs as well as a high body, dog-like



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TASMANIAN WOLF

Closely resembling a dog, but not related, this species is a cousin of the koala and the kangaroo.

head and tail. He is colored tawny brown and his back is barred with narrow black vertical bands which extend for some distance down the sides of his body. Like his canine counterparts, he is carnivorous. The Tasmanian Devil, short-legged and huskily-built animal, is well named, for the appellation suits his unpleasant disposition. In build he is somewhat badger-like, but his body coloring is black with white spots on the breast and rump, and his tail more in evidence. Both the Thylacine and the Tasmanian Devil are becoming increasingly rare in the wild state.

Belonging to the same family as the two preceding species are the dasyures, which in Australia, Tasmania and New Guinea are known as "native cats." They are attractive, civet-like little animals. Their coats range from olive to yellowish-brown and are spotted with white. Like the Tasmanian Devil and the Thylacine, the dasyures are carnivorous.



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TASMANIAN DEVIL

A vicious creature, this marsupial is similar in habit to the American badger.

Related to the dasyures are the phascogales, small, rat-like marsupial meat-eaters native to Australia, Tasmania, and New Guinea. Phascogales live in burrows in the ground or rock dens, or occasionally in tree holes. Their diet includes insects, small birds, mammals and lizards.

In southern and southwestern Australia lives the attractive Banded-anteater which, while a marsupial, in Australia takes the place of the true anteaters and superficially resembles them. Its nose is elongate and pointed, its body and tail moderately long, and its legs short. In color it is gray, which becomes quite dark on the back and contrasts strikingly with the white transverse bands along its body. Its tail is yellow and black above and reddish below. The Banded Anteater is becoming quite rare, its numbers having been greatly depleted by introduced predators.

Counterparts of other non-Australian, non-marsupial mammals are to be found in Australasia. Subterranean marsupial moles, pouched mice and pouched rats are native to the area.

EGG-LAYING MAMMALS

Forming a connecting link between the mammals and the reptiles are the most primitive of all mammals, the Monotremes. While the two types of egg-laying mammals are quite different in general appearance, both are characterized by having their young hatch from leathery, soft-shelled eggs, by having modified horny bills, and by the absence of functional teeth. Their milk is exuded from lacteal glands on the ventral sides of their bodies.

The echidnas, or spiny "ant-eaters" represent one type of Monotreme and they range over much of Australia, Tasmania, and New Guinea. As the name indicates, the spiny ant-eater is adapted for an insectivorous diet, and his long, cylindrical beak and the extensile tongue help him to obtain the insects he desires. Also useful in rooting termites from their subterranean strongholds are the powerful claws with which the echidna is able to burrow. The echidna is protected by a covering of coarse hair and spines which render him porcupine-like.

While there are at least four species of echidnas, the other type of Monotreme is represented by but one species, the Duck-billed Platypus, which is found in Eastern Australia and in Tasmania. Unlike the echidnas, the Platypus does not indicate a preference for dry land but feels more secure in or near the water, where he feeds on aquatic insects or crustaceans. Both his bill and his feet are suited to such habits, for the bill proves an excellent scoop for collecting an under-water insect dinner and the webbed feet are useful in swimming. The male Platypus is armed with a horny spur on the inner surface of each hind leg and within this spur is a duct leading from a gland which secretes a poison. While there is no definite knowledge of the use of such a weapon, it is assumed that the spurs serve as a defensive mechanism.



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DUCK-BILLED PLATYPUS

The platypus is among the most primitive of mammals for it is one of two types which lay eggs. Shown above is the only platypus ever to be exhibited in North America. It lived for more than a month in the New York Zoological Park.

In conclusion it is necessary to reiterate that this bulletin makes no attempt even to name every species of mammal to be found on the islands of the South Pacific. However, since popular guides to the fauna of the region are practically non-existent, it may perhaps prove of some assistance until something more comprehensive is published.

To the American scientist and the layman alike the mammalian fauna of the South Pacific should prove of some interest for it includes many forms which are not duplicated in other parts of the Old World or the Western Hemisphere. It would be an unwise oversight to leave such strange and remote places as the Solomons, New Guinea or the New Hebrides without forming at least a casual acquaintance with their wild life. Fortunately or unfortunately, present opportunities to visit them may not come again.

Photographs unless otherwise accredited are from the files of the Zoological Society of San Diego. The others were supplied through the courtesy of Mr. William Bridges of the New York Zoological Park.

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